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ABSTRACT

This report presents information on the effectiveness, including cost effectiveness, of many programs of the Austin (Texas) Independent School District (AISD). In 1991-92, the AISD Office of Research and Evaluation (ORE) reviewed 85 programs or program components. Cost effectiveness was calculated for 18 programs using an achievement effect measure and for 16 programs using a dropout prevention effect measure. Most evaluated programs were rated as effective. In general, the programs showing the highest achievement gains for students tend to be programs that offer students enriching experiences in addition to the regular curriculum. Most have a relatively high initial cost, but once in place, their per-pupil costs are relatively low. A common feature for successful dropout programs is that they provide students with individual attention or the possibility of flexibility in class schedules and enrichment. These findings are in keeping with other conclusions that the ORE has drawn over the years, such as the fact that students with an opportunity to learn will learn, and that a limited number of people need to be responsible for a student's learning. Early intervention is recognized as preferable to later remediation. In addition, it has been shown that smaller class sizes produce greater learning only through grade 1. One summary table, three tables of program data, and three tables of example data complement the discussion. (Contains 12 references.) (SLD)

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AUSTIN INDEPENDENT SCHOOL DISTRICT

What Works, and Can We Afford It?

Program Effectiveness in AISD, 1991-92

OFFICE OF RESEARCH AND EVALUATION

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What Works, And Can We Afford It? Program Effectiveness In AISD, 1991-92

Executive Summary

Austin Independent School District
Department of Management Information
Office of Research and Evaluation

Authors: David Wilkinson, Evangelina Mangino, Glynn Ligon

Program Description

The Board of Trustees of the Austin Independent School District (AISD) asked the Office of Research and Evaluation (ORE) to provide it with a measure of effect as well as cost on the program effectiveness charts ORE prepares for the Board's annual budget study session. ORE responded during the 1992-93 school year with a retrospective look at 1991-92 AISD programs. In February 1993, ORE presented the Board with program effectiveness charts which included cost-effectiveness ratios for many programs evaluated during 1991-92. The document presented to the Board was a working draft. This report is the finished product.

Cost-effectiveness was calculated by dividing a measure of cost in dollars by one of two measures of effect: (1) achievement, or (2) not dropping out. The cost of a program was defined as the program's appropriation (i.e., budget). The achievement measure of effect was based on standardized test scores from either the Norm-referenced Assessment Program for Texas (NAPT) or the Iowa Tests of Basic Skills (ITBS). The dropout prevention measure of effect was derived from the comparison in ORE's generic evaluation system (GENESYS) of the number of students in a program predicted to drop out with the actual number who did drop out. The cost-effectiveness ratio, expressed in dollars, which results from dividing cost by effect (C/E) is a measure of the cost-effectiveness of a program, i.e., the amount of effect for monies expended.

Where cost or effect measures were not obtainable, and other evaluation information about a program was available, ORE staff assigned ratings of effectiveness to the programs evaluated based on other indicators, such as survey results, retention rate, and attendance rate.

Going beyond 1991-92 AISD programs, a range of options for improving student learning was compiled, and programs were rated for effectiveness based on local evaluation findings or indications from the national research literature.

Major Findings

1. ORE reviewed 85 1991-92 programs or program components. Cost-effectiveness was calculated for 18 programs using an achievement effect measure and for 16 programs using a dropout prevention effect measure. An additional 14 dropout prevention programs were rated on effectiveness, although cost information could not be obtained. Another 37 programs were rated on effectiveness based on other evaluation information. (Pages 9-26)

2. Most programs evaluated in 1991-92 in AISD were rated as effective. Approximately 21% of the ratings were based on achievement, 35% were based on the number of students not dropping out, and 44% were based on other evaluation findings. (Pages 9-26)

3. In general, the programs showing the highest achievement gains for students tend to be programs that offer students enriching experiences in addition to the regular curriculum. Most of these programs have a relatively high initial cost, but once the program is in place the gain for the per-pupil cost is relatively low. (Page 5)

4. A common feature among successful dropout prevention programs is that they provide students with individual attention or the possibility of flexibility in class schedules and enrichment activities. Many of these programs are dependent on the use of volunteers or mentors, so they would not be as cost-effective if the District were to purchase the same services. (Page 5)

5. Over the years, ORE has arrived at several well-supported findings about what works in programs for improving student learning, including: students who have an opportunity to learn will learn, a limited number of people need to be responsible for a student's learning, early intervention is preferable to later remediation, and smaller class sizes produce greater learning gains only up through grade 1. (Pages 6-7)

Budget Implications

Mandate:
Requested by the Board of Trustees

Funding Amount:
(for producing the program effectiveness report)
$14,939 (estimated)

Funding Source:
Local

Implications:
The combination of cost with effectiveness information enables the evaluation of programs in terms of their relative costs in meeting the same outcome criteria: improving student achievement or preventing students from dropping out of school. In other words, alternative programs can be evaluated on the basis of their costs for raising student test scores by a given amount or the cost for each potential dropout averted. Other success indicators notwithstanding, information about which programs provide the maximum effectiveness per level of cost or require the least cost per level of effectiveness will assist in decisions about which programs to keep and expand, which to modify, and which to discontinue.

PROGRAM EFFECTIVENESS SUMMARY

1991-92 Programs

PROGRAM	EFFECT RATING	COST RATING
LOCALLY FUNDED		
Science Academy	+	$$$
Liberal Arts Academy	+	$$$
Kealing Magnet	+	$$
AIM High Elementary Gifted and Talented	+	$$
Secondary Honors	+	0
Bilingual/ESL	0	$$
Special Education		$$$
Drug-Free Schools Eleméntary Curriculum		0
Drug-Free Schools Read Pilot		0
National Science Foundation Student Participation		$
EXTERNALLY FUNDED		
Title VII Secondary Bilingual	[+]	$$$
Chapter 1 Schoolwide Projects	+	$$$
Full-Day Prekindergarten	[+]	$$$
Chapter 1 Supplementary Instruction	+	$$$
Chapter 1 Migrant Supplementary Instruction	[+]	$$$
Chapter 2 Academic Decathlon	[+]	$$$
Title II Elementary Mathematics	[+]	$$$
Drug-Free Schools Conflict Resolution Project	[+]	$$$
Priority Schools Overall	+	$$$
Chapter 1 Nonpublic Schools	[+]	$$$
Title II Secondary Science	[+]	$$$
National Science Foundation Curriculum Development	[+]	$$$
National Science Foundation Staff Development	[+]	$$
Chapter 2 Elementary Computer Lab at Read	+	$$
Chapter 2 Spanish Academy	[+]	$$
Chapter 2 Extracurricular Transportation	[+]	$$
Chapter 2 Private Schools	[+]	$$
Drug-Free Schools Drug Abuse Resistance Education	[+]	$$
Drug-Free Schools Office of Student Intervention Services	[+]	$$
Chapter 1 Neglected or Delinquent	[+]	$$
Chapter 2 Elementary Computer Lab at Blackshear	[+]	$$
Chapter 2 Support for Restructured Robbins	[+]	$$
Drug-Free Schools Private Schools	[+]	$$
Drug-Free Schools All Well Health Services	[+]	$$
Title II Secondary Mathematics	[+]	$$
Title II Elementary Science	[+]	$$
Chapter 2 Secondary Library Technology Support	[+]	$$

[ ] Rating not based on NAPT/ITBS gains

Rating is expressed as contributing to any of the 5 AISD strategic objectives.

+	***Positive***, needs to be kept and expanded
0	***Not significant***, needs to be improved and modified
-	***Negative***, needs major modification or replacement
Blank	***Unknown***, may have positive or negative impact on other indicators; however, impact on the five AISD strategic objectives is unknown.

Cost is the expense over the regular District per student expenditure.

0	***No cost*** or minimal cost
$	***Indirect*** costs and overhead, but no separate budget
$$	***Some direct costs***, but under $500 per student
$$$	***Major direct costs*** for teachers, staff, and/or equipment in the range of $500 per student or more.

PROGRAM EFFECTIVENESS SUMMARY (cont.)

1991-92 Programs

PROGRAM	EFFECT RATING	COST RATING
EXTERNALLY FUNDED (cont.)		
Drug-Free Schools MegaSkills Parent Training	[+]	$$
Drug-Free Schools Peer Assistance Leadership	[+]	$$
Chapter 2 Multicultural/Special Purpose Buses	[+]	$$
Chapter 2 Library Resources	[+]	$$
Drug-Free Schools Student Alcohol and Drug Education Prevention Program	[+]	$$
National Science Foundation Private Sector Involvement	[+]	$
National Science Foundation Student Participation	[+]	$
Chapter 2 Technology for Access to Problem Solving	[+]	$
Project A + School-Based Improvement - Phase 2	[+]	0
Project A + Elementary Technology Demonstration Schools: Patton	0	$$
Project A + Elementary Technology Demonstration Schools: Langford	0	$$
Project A + Elementary Technology Demonstration Schools: Andrews	0	$$
Project A + Elementary Technology Demonstration Schools: Galindo	0	$$
Pregnancy, Education, and Parenting		$$
Chapter 2 Elementary Computer Lab at Blanton	0	$$
Chapter 2 Technology Learning Center at Johnston High	[0]	$$
Drug-Free Schools Parent Involvement		$$
Chapter 2 Middle School Homeroom Training		0
Drug-Free Schools Elementary Curriculum		0
Drug-Free Schools Pilot - Read		0

[ ] Rating not based on NAPT/ITBS gains

PROGRAM EFFECTIVENESS SUMMARY (cont.)

Options for Improving Student Learning

PROGRAM	EFFECT RATING	COST RATING
LOCALLY FUNDED		
Half-Day Pre-Kindergarten	+	$$
Grade Promotion Instead of Grade Retention	+	0
Special Transition Classes for Primary Students	-	0
School-Based Guidance Counselors		$$$
EXTERNALLY FUNDED		
Secondary Magnet Program Schools	+	$$$
Compensatory Education: Resource Teachers (Pullout) with Coordination	+	$$$
Compensatory Education: Resource Teachers (In Class) with Coordination	+	$$$
Compensatory Education: Resource Teachers (Pullout) without Coordination	0	$$$
Compensatory Education: Resource Teachers (In Class) without Coordination	0	$$$
LOCALLY AND EXTERNALLY FUNDED		
One or More Effective Schools Programs	+	$$$
Lowering the Pupil-Teacher Ratio at Grades K and 1	+	$$$
Full-Day Prekindergarten	+	$$$
Lowering the Pupil-Teacher Ratio at Grades 2 - 6	0	$$$
Computer-Assisted Instruction Programs	0	$$$
Most Previous AISD Elementary Summer School Plans before 1990	-	$$$
Instructional Aides in the Classroom	-	$$$
Master Teachers: Highly Experienced Teachers		$$
Tutorials for Students Needing Specific Remediation		$$
After School Day Care for Students Whose Parents Work		$$
Supplemental Classroom Instructional Materials		$$
Teacher Staff Development (Training)		$$
Campus Administrator Staff Development (Training)		$$
Stipends for Teachers with Special Duties/Expertise		$$
Multicultural Education Representing All Cultures		$
EVALUATED NATIONALLY		
Lengthening the School Year	+	$$$
Reading Recovery Program for At-Risk First Graders	+	$$$
Lengthening the School Day	+	$$$
A Priori Compensatory Education Program	+	$$$
Concentrated Instruction Summer School	+	$$$
Full-Day Kindergarten	+	$$
Parent Staff Development (Training)/Parent Involvement	+	$$
Practice Testing for Tests such as TAAS	+	$
Peer Tutoring for Students, by Students	+	$
Mentoring Programs: Adults Paired with Students	+	$
Accelerated Learning Program	+	$

Rating is expressed as contributing to any of the 5 AISD strategic objectives.

- \+ ***Positive***, needs to be kept and expanded
- 0 ***Not significant***, needs to be improved and modified
- \- ***Negative***, needs major modification or replacement
- Blank ***Unknown***, may have positive or negative impact on other indicators; however, impact on the five AISD strategic objectives is unknown.

Cost is the expense over the regular District per student expenditure.

- 0 *No cost* or minimal cost
- $ *Indirect* costs and overhead, but no separate budget
- $$ *Some direct costs*, but under $500 per student
- $$$ *Major direct costs* for teachers, staff, and/or equipment in the range of $500 per student or more.

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CONCLUSIONS AND RECOMMENDATIONS

After considerable study and effort to expand its evaluation reporting to combine measures of program effectiveness with fiscal resources expended, ORE offers the following conclusions and recommendations.

Conclusion #1: Information about the costs of special programs in the District is not easily obtainable at present.

Although some cost information is maintained on central computer files, even knowledgeable users of the system (including ORE) are only able to extract a portion of the desired information. An exception is cost information about large grant-funded projects which track their funds carefully, although even there cost information beyond beginning allocation (used in this report) is hard to compile. Locally funded programs are problematic, particularly in those instances in which the program has no separate budget. Costing a program is not a simple matter, but it is made more complicated in the absence of record keeping devoted to documenting program costs. With better cost information, more sophisticated measures of cost beyond simple appropriation could be applied in cost-effectiveness calculations.

Recommendation #1: For every special program, set up a centrally accessible, computerized record-keeping system to document costs.

Implement fully Bulletin 679 which requires program codes as part of the budget accounting system. Assign program and/or subobject codes to all programs so that they can be accounted for financially.

Conclusion #2: Unless there are meaningful consequences, such as being published in an important report, the priority placed by program staff on documenting program participation and cost information will be relatively low.

Recommendation #2: Greater awareness of and better review by program staff of program rosters and other program information which is used in evaluation is needed to ensure that everyone agrees on the data being used. District decision makers, particularly the superintendent and the Board, must emphasize to program stakeholders the importance of accurate data as the basis for informed decision making about programs.

Conclusion #3: For the purpose of calculating cost-effectiveness, standardized achievement test scores remain the best--i.e., the most reliable, broadest based, and most readily available --effect measure. Refinement of the dropout prevention measure is needed.

Although there may be many measures of a program's effectiveness, all programs must ultimately be held accountable for contributing to the District's strategic objectives, the first of which is that "every student will function at his/her optimal level of achievement and will progress successfully through the system." Thus, the best measures obtainable of achievement and "progress through the system"--the hallmark of which is staying in the system, i.e., not dropping out--need to be applied. Other proposed achievement measures,

such as grades and to-be-developed performance assessment measures, do not serve the present purpose as well as NAPT/ITBS scores because they are not as reliable, broad based, and readily available. A dropout prevention measure which incorporates other factors associated with dropping out beyond the basic state-mandated indicators, such as having previously dropped out, needs to be developed.

Recommendation #3: Continue to measure achievement outcomes for as wide a range of programs as possible, and at the same time continue efforts to develop other broad-based outcome measures which can serve as effect measures in cost-effectiveness computations. Refine the measure of dropout prevention by incorporating other at-risk variables.

Conclusion #4: The methodology used in this study for calculating cost-effectiveness has great promise but also recognizable limitations. Further study and refinement of the methodology are needed to establish more confidence that it appropriately reflects how much learning is achieved for each dollar spent on special programs.

Recommendation #4: Continue to apply cost-effectiveness analysis to the District's special programs while continuing to refine the methodology. A composite ROSE residual should be calculated. The effect of overlapping programs needs to be studied.

WHAT WORKS, AND CAN WE AFFORD IT?

PROGRAM EFFECTIVENESS IN AISD, 1991-92

Introduction

What works in public education, and can we afford it? These questions are being asked more frequently in Austin and around the country as accountability is emphasized during a time of tightening budgets. The Board of Trustees of the Austin Independent School District challenged the Office of Research and Evaluation to expand on the program effectiveness charts prepared the last two years for the Board's annual budget study session.

That expansion is to move toward calculating a cost-effectiveness index and to lay the groundwork for a sunset review process for all programs. That is an enormous challenge--especially considering that no model for such a complete system has been found among school districts contacted around the country.

MANDATE:
Board requested ORE to indicate effect and cost in program effectiveness charts

ORE's RESPONSE:

Retrospective look at 1991-92 evaluations including cost effectiveness

ORE's 1992-93 Agenda includes an evaluation plan to compare programs in terms of cost effectiveness

A working draft of this document was reviewed by program staff, the Board of Trustees, and members of the general public. The information on the following pages represents a collaborative effort that reflects comments by the Board of Trustees, District staff, and community members. Their comments and suggestions were used to fine tune the formats and solidify the calculation formulas. This is an exciting report. A risk has been taken to present ratings of programs using available budget and outcome data; however, the program effectiveness reporting system that eventually results from this report should be well worth all the differences of opinion that may need to be sorted out in the process.

A report like this is a bold venture into previously avoided territory. Much controversy has already developed over the rating system and the methodology used. Please keep these three factors in mind when interpreting the contents of this report.

1. Only the achievement test scores and dropout rates are used as measures of program effectiveness for calculating the cost-effectiveness ratios. Over the years, ORE has encouraged everyone to consider a wide range of information when assessing the impact of programs. For the purpose of calculating cost-effectiveness, however, what was needed were measures of effect common across all types of programs. Standardized achievement test scores, from the Norm-referenced Assessment Program for Texas (NAPT) and the Iowa Tests of Basic Skills (ITBS), were used because they are our most reliable, broadest based, and most

readily available measurement of achievement. Both test scores and dropout rates are widely available across programs and can be adjusted for contextual variables such as the demographics of the students being served by different programs. Other effectiveness measures should not be ignored, however. As an example, the elementary technology pilot schools have shown better gains on the Texas Assessment of Academic Skills (TAAS), than on the NAPT. Readers are encouraged to read the detailed ORE evaluation reports to find information on other outcomes such as this.

2. The methodology used to calculate the cost-effectiveness ratios is new to AISD. Much discussion of this methodology is needed to establish our degree of confidence that it appropriately reflects how much learning is achieved for each dollar spent in these programs.

   Current methodology has the limitation that it does not allow for an analysis of the effect of overlap of programs.

3. Better review by program staff of the program rosters, numbers served, and budgets is needed to ensure that everyone agrees on the data being used. Until these numbers get published and used in an important report, the priority placed by program staff upon documenting program participation and budgets will remain relatively low.

   The review of this report by program staff has already resulted in the adoption of measures to ensure better record keeping and clearer definition of type of services, students served, and project goals.

The Method

Following Henry Levin's definition of cost effectiveness, cost effectiveness is obtained by dividing cost by effect.

$$\text{Cost Effectiveness} = \frac{\text{cost}}{\text{effect}}$$

The definition of the variables in this equation is simple but controversial.

DEFINITIONS

Cost: Appropriation (Budget)

Effect: ☑ Achievement (Used in formula)
☑ Not dropping out
☑ Other Indicators (Not used in formula)

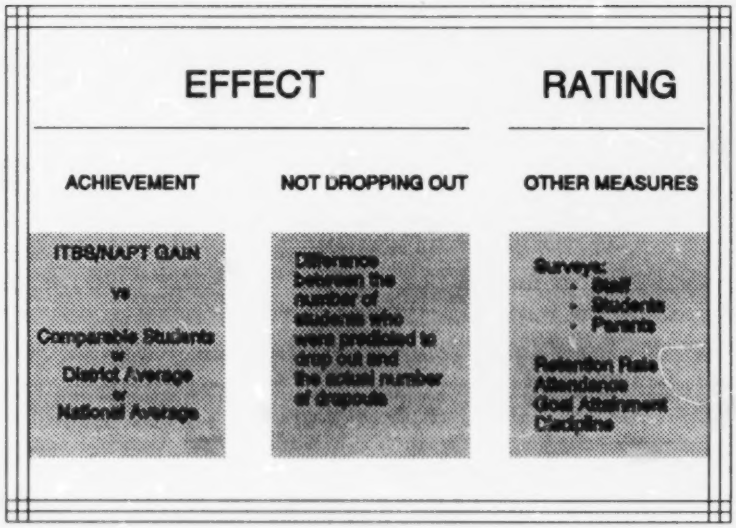
Cost

Program costs are reported as budgeted amounts. Actual expenditures may vary. Some programs with relatively low costs may require substantial indirect resources for staff support, facilities, etc. Volunteers hold the costs down in some programs, but expansion of those programs could cost more if the pool of available volunteers is not large enough to accommodate expansion.

91.43

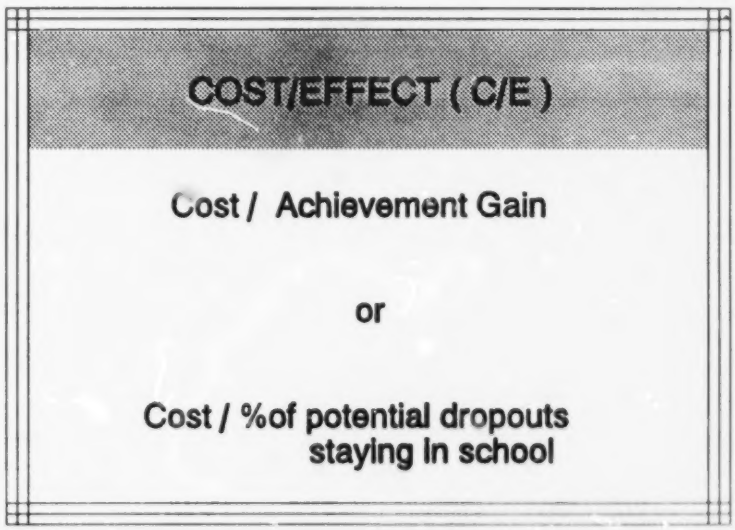
Outcomes or Effect

Program outcomes in these charts are very simple. If available, then the NAPT/ITBS scores are used. If the program focuses on dropout prevention, then the dropout rate is used. This seems straightforward, but NAPT/ITBS is only one of many measures of student academic progress. TAAS, college entrance exams (SAT and ACT), grade-point average (GPA), and many other alternatives could be used. NAPT/ITBS was chosen because it is our most reliable, broadest based, and most readily available measure. In order to compare cost effectiveness across programs, a single effect measure is essential.



When the NAPT/ITBS is used, outcomes are reported as the achievement gain in grade equivalent months--above and beyond what the students would have gained without the program. A grade equivalent month is the amount of gain made on the NAPT/ITBS by an average student during one month of instruction.

For programs for at-risk students, clearly the dropout rate is appropriate. However, these programs can certainly have benefits beyond just keeping students in school. These charts look simply at how much the program spent to keep <u>one</u> student from dropping out. In other words, if the student population served typically has 20 dropouts annually, and among the program students only 15 dropped out, then the program is credited with keeping five in school. This can make the cost per student kept in school high, because 20 at-risk students may have to be served to net one dropout kept in school.



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Programs for which no NAPT/ITBS or dropout data are available were rated based upon other information from their evaluation reports.

Cost-effectiveness

Outcomes are divided into the cost of the program per student to give the cost to produce one month of achievement gain, or into the total program cost to calculate the cost to keep one potential dropout in school. A caution to the reader is that we may not be able to produce twice the effect for twice the cost. We do not know what relationships would exist if we spent more or less money on a program. However, this cost-effectiveness number does tell us what we did spend for the amount of benefit realized.

Some programs do not have a cost-effectiveness amount shown, because they had no positive effect or because their impact was actually negative.

The Charts

There are several charts included. The intent was to present for the members of the Board a comprehensive look at the programs that exist in AISD. Therefore, we have not restricted these charts to just the programs evaluated by ORE.

A. **Programs Evaluated Nationally**

These are national efforts, movements, and programs that have been the focus of attention on a national basis. Some of these have been evaluated locally, but most of these ratings are based upon studies in the research literature.

B. **Programs Evaluated in AISD**

These are the programs for which ORE has recent evaluation findings.

C. **Programs for At-Risk Students**

This is a list of the programs identified by AISD's at-risk coordinator. There are no ratings on this list.

D. **Programs in the 1992-93 Maintenance and Operations Budget**

This is a listing of programs and budgeted amounts from the current budget.

Findings

1991-92 Programs

Most programs evaluated in 1991-92 in AISD are rated as effective. Approximately 21% of the ratings are based on achievement, 35% are based on the number of students not dropping out, and 44% are based on other evaluation findings.

Achievement Gains

In general, the programs showing the highest achievement gains for students served tend to be programs that offer students enriching experiences in addition to the regular curriculum. Most of these programs have a relatively high initial cost. But once the program is in place, the gain for the per-pupil cost is relatively low.

WHAT WORKS

Successful Program	Effect (Gain)	C/E Index ($)
★ Computer Lab at Read	9.5	6
★ Science Academy	6.4	210
★ Liberal Arts Academy	3.4	443
★ Ch. 1 Supplementary	3.3	530
★ Secondary Honors	2.3	0
★ Gifted & Talented (Elem.)	1.7	51
★ Kealing	1.3	410

Dropout Prevention

A common feature among successful dropout prevention programs is that they provide students with individual attention or the possibility of flexibility in class schedules and enrichment activities. Many of these programs are dependent on the use of volunteers or mentors. The cost reported for these programs does not reflect the in-kind contribution of volunteers.

WHAT WORKS

Successful Dropout Prevention Programs

	Served	% Who Stayed
★ Johnston Tech. Lab	678	29
★ Block Prog. at Travis	175	10
★ Title VII Newcomers	104	7
★ PEAK	163	7
★ Block Prog. at Lanier	144	5
★ Adopt a student	31	3

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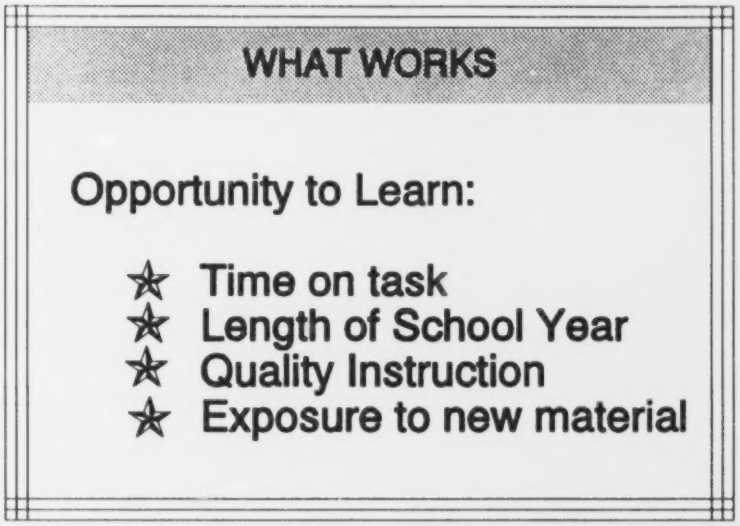
ORE Findings Over the Years

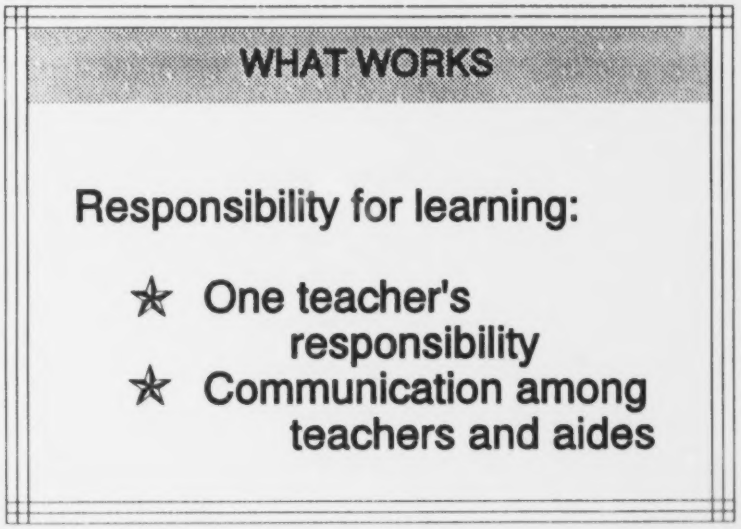
Students who have an opportunity to learn will learn.



This finding is supported by volumes of research on time on task, length of the school year, tracking, promotion/ retention, and compensatory programs. The basic concept is that successful programs increase a student's exposure to quality instruction, and unsuccessful programs pull students away from quality instruction or substitute inferior instruction. Teacher aides who take students away from a fully trained and certified teacher lower achievement gains. Students who are retained rather than being promoted repeat the same lessons compared to their more successful peers who are promoted and exposed to new content and skills. Accelerated learning is based upon this concept.

Responsibility for Learning

One or a very small number of people need to be responsible for a student's learning. Pull-out programs have been unsuccessful when they divide or obscure the responsibility of teachers for each student's progress. A multiplicity of programs can divide the responsibility for a student over so many people that no one really accepts that responsibility. The old Title I, now Chapter 1, programs were less successful when they relied upon a pull-out model and competed with many other programs for the same students. Since the overlap of programs has been



reduced through better coordination of services, gains have improved. Teacher aides who divide the responsibility with regular classroom teachers may have been unsuccessful partly because of that division of responsibility.

Too Little, Too Late

Early intervention has been successful. Remediation has been less successful. Programs for at-risk high school students who are already so old that they cannot earn credits fast enough to graduate before they are too old to enroll in school are "too little, too late." On the other hand, programs that break the traditional semester course model and allow students to accelerate their progress have been successful.

Class Size

Small classes produce greater learning below grade 2. Above that, small classes do not consistently produce higher gains, and the gains that can be found are very expensive to achieve.

What is Done Within an Instructional Arrangement Can Be More Important Than the Arrangement Itself.

As an example, when the old Title I program was told that the pull-out model was ineffective, changes were made. Later, some schools returned to a pull-out model that emphasized clear coordination of goals and communication between the resource teacher and the regular classroom teacher. Those schools have been successful.

Observations within smaller classes at the higher grade levels showed that what happens in a smaller class is not substantially different from what happens in one with a few more students. Thus, class size might become a positive factor above grade one IF the nature of what is happening within the classroom were to change as a result of the smaller class size.

Authors' Note

The information in this report should fuel a healthy debate about how we evaluate the success of our educational programs. We do not represent any of these findings to be absolute. As discussion proceeds and we continue to refine our methodology, we may redefine what we consider to be an effective program.

Readers seeking additional information about many of the programs rated should consult the following ORE publications:

Program	Publication Number
A+ Elementary Technology Schools	91.30
A+ School Based Improvement	91.32
Chapter 1/Chapter 1 Migrant	91.03
Chapter 2	91.19
Drug-Free Schools	91.29
National Science Foundation	91.25
Title II	91.26
Title VII	91.22

Anyone interested in cost-effectiveness analysis and who would like to share information is invited to write the authors at 1111 West 6th, Austin, TX 78703-5399 or call (512) 499-1724.

COST-EFFECTIVENESS OF 1991-92 PROGRAMS BASED ON AN ACHIEVEMENT MEASURE

Example

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Elementary Computer Lab Funding Source: Local Grades: 5 Level of Service: 45-85 hours/week	+	$15,925	264	$60	R: 11.0 M: 8.0 Avg.: 9.5	$6

Elementary Computer Lab, 1991-92 - *Grades*: 5 - *Level of Service*: 45-85 minutes/week

Rating: +

Cost: $15,925

Number of Students Served: 264

Cost Per Student: $60 [$15,925/264 = $60]

Effect: R: 11.0 M: 8.0 Avg. = 9.5

Cost/Effect: $6 [$60/9.5 = $6.32]

What this means is that it costs $6 per year per Elementary Computer Lab student attending the computer lab to attain one month's achievement gain above that the student would normally have achieved as the result of the regular instructional program.

91.43

Cost-Effectiveness of 1991-92 Programs Based on an Achievement Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Bilingual/ESL Funding Source: Local Grades: K-12 Level of Service: Varies	0	$831,524	6,108	$136	R: 0.0 M: 0.2 Avg.: 0.1	
Chapter 1 School Projects (all students) Funding Source: External Grades: K-6 Level of Service: All day/all year	0	$1,787,173	6,328	$282	R: -0.8 M: N/A Avg.: N/A	
Chapter 1 Schoolwide Projects (low achievers) Funding Source: External Grades: K-6 Level of Service: All day/all year	+	$245,683	428	$574	R: 1.5 M: N/A Avg.: N/A	$383
Chapter 1 Supplementary Instruction (low achievers) Funding Source: External Grades: 1-6 Level of Service: 30 min. per day/all year	+	$785,538	1,482	$530	R: 3.3 M: N/A Avg.: N/A	$160

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Cost-Effectiveness of 1991-92 Programs Based on an Achievement Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Chapter 2 Elementary Computer Lab at Read Funding Source: External Grades: 5-6 Level of Service: 45-85 min./week/all year	+	$15,925 --- Investment Cost (est.) $15,000 for software and 8 Apple computers bought in 1989-90	264	$60	R: 11.0 M: 8.0 Avg.: 9.5	$6
DFS Student Alcohol and Drug Education Prevention Program Funding Source: External Grades: 5-12 Level of Service: N/A	+	$149,009	1,711	$87	R: -0.04 M: -0.14 Avg.: -0.09 Positive student survey results, lower retention, & lower dropout rate	
Elementary Computer Lab at Blanton Funding Source: External Grades: 2-5 Level of Service: 20-30 min./day/all year	0	$56,522 --- Investment Cost (est.) $100,000	402	$141	R: 0.7 M: -0.6 Avg.: 0.05	
Gifted & Talented (Elementary) Funding Source: Local Grades: K-6 Level of Service: Varies	+	$342,156	3,922	$87	R: 2.0 M: 1.4 Avg.: 1.7	$51
Gifted & Talented (Secondary) Funding Source: Local Grades: 6-11 Level of Service: 1 or more honors courses	+	$0	8,321	$0	R: 2.7 M: 2.0 Avg.: 2.3	
Kealing Magnet Funding Source: Local Grades: 7-8 Level of Service: All year	+	$221,491 --- Investment Cost (est.) $10,000	432	$513	R: 2.0 M: 0.5 Avg.: 1.25	$410

Cost-Effectiveness of 1991-92 Programs Based on an Achievement Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Liberal Arts Academy Funding Source: Local Grades: 9-12 Level of Service: All day	+	$450,296 --- Investment Cost (est.) $173,533	276	$1,632	R: 5.4 M: 1.3 Avg.: 3.4	$480
MegaSkills Parent Training Funding Source: External Grades: 2-6 Level of Service: 5-8 workshops	+	$75,630 ($40,650 provided by DFS Grant, $21,980 Chapter 1, $13,000 area businesses)	1,196	$63	R: 0.06 M: 0.10 Avg.: 0.08 Highest attendance, lower discipline, & lower retention rate	
Priority Schools Overall (Low achievers) Funding Source: External & Local Grades: Pre-K through 6 Level of Service: All day/all year	+	$5,227,579	7,557	$692	R: 3.4 M: N/A Avg.: N/A	$204
Project A+ Elementary Technology Demonstration Schools: Andrews Funding Source: External Grades: K-5 Level of Service: All day/all year	0	$63,253 --- $1,100,956 Investment cost for hardware, software, and wiring	843	$75	R: 0.0 M: -0.25 Avg.: -0.13	
Project A+ Elementary Technology Demonstration Schools: Patton Funding Source: External Grades: K-5 Level of Service: All day/all year	0	$63,253 --- $1,354,320 Investment cost for hardware, software, and wiring	1,037	$61	R: -0.5 M: 0.0 Avg.: -0.25	

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Cost-Effectiveness of 1991-92 Programs Based on an Achievement Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Project A+ Elementary Technology Demonstration Schools: Langford Funding Source: External Grades: K-5 Level of Service: All day/all year	0	$53,744 --- $749,642 Investment cost for hardware, software, and wiring	574	$94	R: 2.0 M: -0.25 Avg.:0.875	
Project A+ Elementary Technology Demonstration Schools: Galindo Funding Source: External Grades: K-5 Level of Service: All day/all year	0	$44,235 --- $246,000 Investment cost for hardware, software, and wiring	751	$59	R: 0.0 M: 1.25 Avg.:0.625	
Science Academy Funding Source: Local Grades: 9-12 Level of Service: All year	+	$815,604 --- $513,711 Investment cost, local and grant sources	608	$1,341	R: 8.3 M: 4.5 Avg.: 6.4	$210

COST-EFFECTIVENESS OF 1991-92 PROGRAMS BASED ON A DROPOUT PREVENTION MEASURE

Example

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS Predicted	Obtained	PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT) #	%	COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
Dropout Prevention Program Funding Source: External Grades: 9-12	+	$100,000	140	$714	12	3	9	75	$11,111

Dropout Prevention Program, 1991-92 - Grades: 9-11 - *Level of Service*: 3 hours/day

Rating: +

Cost: $100,000

Number of Students Served: 140

Cost Per Student: $714 [$100,000/140 = $714.28 = $714 rounded]

Effect: 9

[Predicted 9.1%, Obtained 2.9%

2.9/9.1 = .31868 = 32% of predicted rate, or 68% "saved" from dropping out

.091 x 140 students = 12.74 = 12 rounded = 12 students predicted to drop out

.68 x 12 students = 8.84 = 9 rounded = 9 students "saved"]

Cost/Effect: $11,111 [$100,000/9 = $11,111.ll = $11,111 rounded]

What this means is that it costs $11,111 for each student "saved" from dropping out by the Dropout Prevention Program who would otherwise have been expected to drop out of school.

Cost-Effectiveness of 1991-92 Programs Based on a Dropout Prevention Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS		PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT)		COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
					Predicted	Obtained	#	%	
Adopt A Student at LBJ Funding Source: Local Grades: 9-12	+	$0	31	$0	3	0	3	100	$0
Alternative Learning Center (ALC) Funding Source: Local and External Grades: 9-12	+	$429,760	104	$4,132	104**	30	74	71	$5,804
Alternative Learning Center (ALC) Funding Source: Local and External Grades: 7-8	+	$628,111	152	$4,132	152**	31	121	80	$5,191
Block Program-Crockett (Success) Funding Source: Local Grades: 9-12	+		79		2	1	1	50	
Block Program-Lanier (Connections) Funding Source: Local Grades: 9-12	+		114		5	0	5	100	
Block Program-Reagan Funding Source: Local Grades: 9-12	+		45		2	1	1	50	
Block Program-Travis (Excel) Funding Source: Local Grades: 9-12	+		175	0	14	4	10	71	

* Participants

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Cost-Effectiveness of 1991-92 Programs Based on a Dropout Prevention Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS		PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT)		COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
					Predicted	Obtained	#	%	
Communities in School (CIS) at Fulmore Funding Source: External Grades: 7-8	+		52		2	0	2	100	
CIS at Pearce Funding Source: External Grades: 7-8	0		18		1	1	0	0	
CIS at Porter Funding Source: External Grades: 7-8	+		41		1	0	1	100	
CIS at Robbins Funding Source: External Grades: 9-12	+		79	0	79**	15	64	81	
CIS at Travis Funding Source: External Grades: 9-12	+		40	0	3	1	2	33	
CVAE Funding Source: Local Grades: 9-12	-		361	0	39	47	-8	-21	
Evening School Funding Source: Local and External Grades: 9-12	+	$329,346	300	$1,098	300**	60	240	80	$1,372
Hispanic Student Scholarship Initiative (HSSI) at Martin Funding Source: External Grades: 7-8	0	$0	31	$0	0	0			
Johnston Technology Learning Ctr. Funding Source: External Grades: 9-12	+	$56,838	678	$84	34	5	29	85	$1,672

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Cost-Effectiveness of 1991-92 Programs Based on a Dropout Prevention Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS		PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT)		COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
					Predicted	Obtained	#	%	
Jumpstart (McCallum) Funding Source: Local Grades: 9-12	0	$0	11	0	0	0			
Mentor Funding Source: External Grades: 9-12	+		41		2	0	2	100	
Mentor Funding Source: External Grades: 7-8	+		92		1	0	1	100	
Newcomers Program (Title VII) Funding Source: External Grades: 9-12	+	$140,000	104	$1,346	104**	3	101	97	$1,386
Peer Assistance Leadership (PAL) Funding Source: External Grades: 9-12	+	$13,162	48	$274	3	0	3	100	$4,387
Peer Assistance Leadership (PAL) Funding Source: External Grades: 7-8	+	$46,888	171	$274	1	0	1	100	$46,888

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Cost-Effectiveness of 1991-92 Programs Based on a Dropout Prevention Measure

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS		PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT)		COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
					Predicted	Obtained	#	%	
Practical Effective Application of Knowledge (PEAK) Program (Austin, McCallum) Funding Source: Local Grades: 9-12	+	$0	34	$0	2	0	2	100	$0
Practical Effective Application of Knowledge (PEAK) Program - Spring 1992 Funding Source: Local Grades: 9-12	+	$0	129	$0	5	0	5	100	$0
Project MAN (Men Act Now) at LBJ Funding Source: External Grades: 9-12	+	$0	28	0	1	0	1	100	$0
Reading Tutor at Austin Fall 1991 Funding Source: Local Grades: 9-12	0		25		1	1	0	0	
Reading Tutor at Austin Spring 1992 Funding Source: Local Grades: 9-12	+		21		1	0	1	100	
Robbins Funding Source: Local and External Grades: 9-12	+	$1,333,238	536	$2,487	536*	94	442	82	$3,016
Texas Associates of Minority Engineers (TAME) Club at Bowie Funding Source: Local Grades: 9-12	0	$210	53	$4	1	1	0	0	
Zenith at Evening School Funding Source: Local Grades: 9-12	+	$131,990	323	$409	323*	16	307	95	$430

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EFFECTIVENESS OF 1991-92 PROGRAMS BASED ON OTHER INDICATORS

Example

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Supplementary Instructional Program Funding Source: External Grades: K-6 Level of Service: 1-2 hours per week	+	$144,200	128	$1,127	Rating based on program meeting its goals	

Supplementary Instructional Program, 1991-92 - *Grades*: K-6 - *Level of Service*: 1-2 hours/week

Rating: +

Cost: $144,200

Number of Students Served: 128

Cost Per Student: $1,127 [$144,200/128 = $1,126.56 = $1,127 rounded]

Effect: No NAPT/ITBS or dropout data available

[Because no appropriate achievement test data or dropout prevention data were available, the rating for this program is based on other indicators, in this case, a measure of the extent to which the program is meeting its goals.]

Cost/Effect: Cannot be calculated

[In the absence of an effect measure comparable to that used with other programs by which to divide cost (i.e., the denominator), a cost-effectiveness ratio cannot be calculated.]

What this means is that it costs $1,127 per year per Supplementary Instructional Program student to attain progress toward the program's goals, but the cost-effectiveness of the program relative to other programs in terms of its effect on student achievement or dropout prevention cannot be determined.

91.43

Effectiveness of 1991-92 Programs Based on Other Indicators

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Chapter 1 Migrant Supplementary Instruction Funding Source: External Grades: K-12 Level of Service: One to two hours per week/full year	+	$144,002	128	$1,125	Rating based on program meeting its goals	
Chapter 1 Neglected or Delinquent Institutions Funding Source: External Grades: 1-12 Level of Service: Varied	+	$75,498	1,054	$72	Rating based on institutions meeting their goals for the year	
Chapter 1 Nonpublic Schools Funding Source: External Grades: 1-7 Level of Service: 30 min./day/all year	+	$16,377	22	$744	Rating based on program meeting its goals	
Chapter 2 Academic Decathlon Funding Source: External Grades: 11-12 Level of Service: Varied by school	+	$38,609	76	$508	Rating based on employee survey results	
Chapter 2 Elementary Computer Lab at Blackshear Funding Source: External Grades: K-1 and ED students in grades 1-3 Level of Service: 45-60 minutes/day/all year	+	$17,191 Investment Cost (est.) $16,000 for hardware and software plus $1,000 annually for consumable materials	123	$8	Rating based on employee survey results	
Chapter 2 Extracurricular Transportation Funding Source: External & Local Grades: 6-12 Level of Service: As requested	+	$194,713 (Chapter 2 $96,418; Local $98,295)	540	$182	Rating based on Student and Employee survey results	

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Effectiveness of 1991-92 Programs Based on Other Indicators

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Chapter 2 Library Resources Funding Source: External Grades: Pre-K through 12 Level of Service: N/A	+	$40,310	66,705	$1	Rating based on employee survey results	
Chapter 2 Middle School Homeroom Training Funding Source: External Grades: 6-8 Level of Service: None		$3,379	0		No training held	
Chapter 2 Multicultural/Special Purpose Buses Funding Source: External Grades: Pre-K through 12 Level of Service: As requested/all year	+	$12,000	9,450	$1	Rating based on employee and bus user survey results	
Chapter 2 Private Schools Funding Source: External Grades: Pre-K through 12 Level of Service: N/A	+	$21,419	2,766	$8	Rating based on private school survey results	

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Chapter 2 Secondary Library Technology Support Funding Source: External Grades: 6-12 Level of Service: N/A	+	$19,833	12,032	$2	Rating based on purchases made	
Chapter 2 Spanish Academy Funding Source: External Grades: Any AISD staff member is eligible to participate Level of Service: N/A	+	$38,774	213 Staff	$182	Rating based on participant survey	
Chapter 2 Support for Restructured Robbins Funding Source: External Grades: 9-12 Level of Service: N/A	+	$7,000	361	$19	Rating based on principal interview	
Chapter 2 Technology for Access to Problem Solving Funding Source: External Grades: 8 Level of Service: Calculators & training one time	+	$0 (Calculators provided by TEA)	4,324	$0	Rating based on employee survey results	
Chapter 2 Technology Learning Center at Johnston High Funding Source: External Grades: 9-12 Level of Service: As requested by classroom teachers for enrichment activities	0	$56,838 Investment Cost (est.) $110,000 for 25 station integrated Learning System (ILS)	1,552	$37	Rating based on employee survey results	
DFS All Well Health Services Funding Source: External Grades: K-12 Level of Service: Teachers Conference	+	$3,000	10 teachers	$300	Rating based on staff survey results	

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Effectiveness of 1991-92 Programs Based on Other Indicators

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
DFS Conflict Resolution Project Funding Source: External Grades: 9-12 & staff Level of Service: 3 meetings/month/all year	+	$55,147	86	$641	Rating based on survey results	
DFS Drug Abuse Resistance Education Funding Source: External Grades: 5 & 7 Level of Service: 5 hrs./week for 17 & 10 weeks respectively	+	$686,110 ($594,302 provided by APD; $46,808 DFS grant, $30,000 fundraising, $16,000 private contribution)	10,023	$4	Rating based on survey results	
DFS Elementary Curriculum Funding Source: External Grades: PK-8 Level of Service: N/A		$40,886	38,346	$1	Insufficient Information	
DFS Office of Student Intervention Services Funding Source: External Grades: K-12 Level of Service: 1 play at each of 27 campuses	+	$22,326	5,560	$4	Rating based on survey results	Not available

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DFS Parent Involvement Funding Source: External Grades: Adult Level of Service: 5 workshops		$5,050	202 Parents	$25	No assessment conducted	
DFS Private Schools Funding Source: External Grades: PK-12 Level of Service: Varied by school	+	$10,713	1,717	$6	Rating based on staff survey results	
DFS Read Pilot Funding Source: External Grades: 5-6 Level of Service: 1 5-day workshop		$1,357	264	$5	Insufficient Information	
DFS Peer Assistance Leadership Funding Source: External Grades: K-12 Level of Service: 30-35 minutes/week/all year	+	$60,050	1,509	$40	Rating based on survey results	
Full-Day Prekindergarten Funding Source: External Grades: Pre-K Level of Service: Full-day classes all year	+	$1,291,422	1,787	$723	Rating based on previous years' test results	
National Science Foundation Curriculum Development Funding Source: External Grades: K-12 Level of Service: Varies	+	$12,000	20 Teachers	$600/ teacher	Rating based on teacher survey	

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Effectiveness of 1991-92 Programs Based on Other Indicators

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National Science Foundation Private Sector Involvement Funding Source: External Grades: 9-12 Level of Service:	+			Insufficient Information	Rating based on Director survey	
National Science Foundation Staff Development Funding Source: External Grades: 9-12 Level of Service:	+	$20,000	80 Teachers	$250/ teacher	Rating based on teacher survey	
Pregnancy, Education, and Parenting Funding Source: External Grades: 8-12 Level of Service: Varies		$120,000	79	$1,519	Too few students per grade for analysis	
Project A+ School Based Improvement - Phase 2 (Includes Phase I Schools) Funding Source: Local Grades: K-12 Level of Service: All year	+	$108,398	24,489	$4	Rating based on programs initial implementation goals being met	

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Effectiveness of 1991-92 Programs Based on Other Indicators

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Special Education Funding Source: Local/External Grades: K-12 Level of Service: All year		$36,003,493	9,129	$3,944		
Title II Elementary Mathematics Funding Source: External Grades: K-5 Level of Service: Varies	+	$34,937	61	$573	Rating based on participant survey	
Title II Elementary Science Funding Source: External Grades: K-5 Level of Service: Varies	+	$34,557	122	$283	Rating based on participant survey	
Title II Gifted/Talented Funding Source: External Grades: K-5 Level of Service: Varies	+	$15,887	308	$52	Rating based on participant survey	
Title II Secondary Mathematics Funding Source: External Grades: 6-12 Level of Service: Varies	+	$41,082	116	$354	Rating based on participant survey	
Title II Secondary Science Funding Source: External Grades: 6-12 Level of Service: Varies	+	$34,251	59	$581	Rating based on participant survey	
Title VII Secondary Bilingual Funding Source: External Grades: 9-11 Level of Service: All year	+	$140,000	104	$1,346	Rating based on other school success indicators	

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At-Risk Programs (Evaluation or program effectiveness information is available only for *'d programs.)

Source: Glenda Stover, "Austin ISD At-Risk Programs," August 1992

Elementary (PK-5)

Adopt-A-School
Attendance Officers
Accelerated Learning
At-Risk Counselors
"Believe in Me"
Bilingual/ESL Programs*
Bridge Computer Lab*
CATCH
Character Education
Chapter 1*
Communities in Schools (CIS)
Community Mentor (St. Edward's Migrant Students)
Community Schools
Compensatory Education
Content Mastery
Crisis Intervention
Drug Abuse Resistance Education (DARE)*
Education for Self-Responsibility (ESR) II
Elementary Tutorial Students
Elementary Center for Reading Instruction
Full Day Pre-K*
Guidance and Counseling
Helping One Student to Succeed (HOSTS)
Higher Order Thinking Skills (HOTS)
Local Support Team/Student Assistance Program (LST/SAP)
MegaSkills*
Nursing Services
Parent Training Spec./Priority Schools*
Parental Involvement Program
Parents as Teachers
Peer Assistance Leadership (PAL) Program*
Positive Action
Prekindergarten Program*
Prevention and Remediation in Drug Education (PRIDE)
Project Charlie
Project Mentor
Readers are Learners
Reading is Fundamental
SABES (Writing to Read-Spanish)
School Based Improvement (SBI)*
School of the Future
Special Education*
Student Alcohol and Drug Abuse Prevention Program*
Teacher Expectations and Student Achievement (TESA)
Technology Pilot Projects
Texas Children's Mental Health Plan
Urban League Programs
VALE
Vision/Hearing Screening
Visiting Teachers
Volunteer Program
Writing to Read Lab*
Youth Advocacy
"You've Got to Be Kid-ding!"

* Information is contained in the program effectiveness charts.

Secondary (6-12)

Academic Incentive Program
Academic Interdisciplinary Program
Academic Teaming
Adopt-A-School
Alternative Learning Center (ALC)*
Attendance Officers
Basic Vocational Education
CCC Labs**
Communities in Schools*
Content Mastery
Cooperative Learning
Coordinated Vocational Academic Education (CVAE)*
Crisis Intervention
Education for Parenthood Infant Development Centers
English as a Second Language (ESL)
ESOS
Evening Classes
Evening High School*
GED Program
Gettin' Down to Business/Taking Care of Business
Guidance and Counseling
High Expectations
High School Block Programs*
Hispanic School Scholarship Initiative*
Individual Vocational Education
Jump Start*
Local Support Team/Student Assistance Program (LST/SAP)
Migrant Program*
MOTC
Newcomers (Title VII)*
Nursing Services
Pathways
PEAK*
Peer Assistance Leadership (PAL) Program*
Peer Mediation Training
Pregnancy, Education, and Parenting (PEP) Program
Project Excel*
Project Mentor*
Project Reeducation
School-Age Pregnancy/Parenting (was renamed PEP)**
School Based Improvement (SBI)*
School-Community Liaison Representatives
Secondary Tutoring
Southwest Texas Talent Search
Special Education
Student Alcohol and Drug Abuse Prevention Program*
Summer High School
Technology Learning Center/CCP Lab
TOUCH
UT Outreach Program
Urban League
Vision/Hearing Screening
Visiting Teachers
W. R. Robbins*
"You've Got to Be Kid-ding!"
Youth Advocacy
Youth Intervention Service (ACGC/Shoal Creek)
Zenith*

* Information is contained in the program effectiveness charts.

** Did not exist in 1991-92

1992-93 Budgeted Programs and Services •

ADMINISTRATION:

DESCRIPTION	TOTAL 1992-93
Total Board of Trustees	$ 443,013
Superintendent:	
Superintendent's Ofc.	$ 234,828
Internal Audit	181,883
Communication Services	155,163
Cable TV/AMPS	355,241
Total Superintendent	$ 927,115
Area Superintendents for Operations:	
Area 1	$ 236,168
Alternative Learning Center	998,702
Area 2	186,416
Kealing	395,635
Robbins	1,081,986
Evening School	452,953
Area 3	231,991
Liberal Arts Academy	430,688
Area 4	288,999
Area 5	289,374
Science Academy	821,999
Total Area Superintendents	$5,414,911

CURRICULUM SUPPORT SERVICES

DESCRIPTION	TOTAL 1992-93
Asst. Superintendent's Office	$ 557,402
Executive Director's Office	$ 1,039,453
Adopt-A-School	$ 218,632
Project A+	$ 95,262
School Support Services:	
Director's Office	$ 256,461
Health Services	1,086,998
School-Community Services	364,099
Student Intervention	55,954
Community Education	303,506
At-Risk Programs	79,411
Guidance and Counseling	404,727
Total School Support Servs.	$ 2,551,156
Special Projects:	
Director's Office	$ 73,275
Gifted and Talented	131,666
Early Childhood	146,612
Total Special Projects	$ 351,553

• As published in AISD's Budget for the Year 1992-93 adopted August 12, 1992; does not include school budgets.

CURRICULUM SUPPORT SERVICES:

DESCRIPTION	TOTAL 1992-93
Coordinators:	
English	$ 311,595
Science	202,990
Math	47,300
Computer Science	34,400
Social Studies	18,845
Fine Arts	11,400
Instrumental Music	878,173
Choral & General Music	580,174
Journalism	59,436
Second Languages	24,101
Physical Education	9,907
Total Coordinators	$2,143,921

DESCRIPTION	TOTAL 1992-93
Special Education:	
Special Education Instruc.	$ 596,344
Speech/Language Services	1,499,485
Austin State Hospital	380,510
Rosedale	1,427,165
Rio Grande School	608,350
Homebound/Hospital Serv.	265,294
Mary Lee	193,398
Clifton TMR Center	984,411
Dill/Diagnostic Intervention	375,825
Adm.-Management	629,633
Occ. and Physical Therapy	560,843
Special Education - AH/VH	311,712
Adm.-Support Assessment	1,031,127
Total Special Education	$8,864,097

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CURRICULUM SUPPORT SERVICES:

DESCRIPTION	TOTAL 1992-93
State and Federal Programs:	
Director's Office	$ 164,222
School to Work	199,080
School to Work	446,203
School to Work	190,603
Bilingual Education	503,119
Bilingual Education	346,918
Bilingual Education	586,077
Total State and Fed. Progs.	$ 2,436,222
Professional Development:	
Director's Office	$ 514,366
Instructional Tech	886,100
LRC/Media/Library	909,882
Science/Health Res. Ctr.	164,743
Total Prof. Development	$ 2,475,091
TOTAL CURRICULUM	$20,767,189

BUSINESS SUPPORT SERVICES:

DESCRIPTION	TOTAL 1992-93
Asst. Superintendent's Ofc.	$ 141,042
Intergovernmental Relations	$ 199,409
Personnel:	
Personnel	$ 1,540,896
Subs./Intern/PT/Supply	3,431,910
Total Personnel	$ 4,972,806
Finance	
Finance Office	$ 5,992,228
Budget Office	90,345
Purchasing & Central Serv.	608,[illegible]6
Warehouse	475,633
Mail Room	219,030
Print Shop	287,750
Reproduction	129,055
Total Finance	$ 7,802,457

BUSINESS SUPPORT SERVICES:

DESCRIPTION	TOTAL 1992-93
Management Information:	
Management Information	$ 583,027
ORE/Systemwide Evaluation	554,222
Data Services	2,696,431
Student Recs. and Reports	319,226
Total Manag. Information	$ 4,152,906
Construction Management:	
Construction Management	$ 4,961,517
Buildings and Grounds	4,994,573
Housekeeping Services	1,772,884
Vehicle Services	452,481
Security	945,372
Total Construction Manag.	$13,126,827
Total Transportation	$10,784,545
Athletics:	
Interscholastic Athletics	$ 1,072,612
Burger Center	140,598
Total Athletics	$ 1,213,210
Total Business Support Svcs	$42,393,202
Total Department Budgets	$69,945,430

DESCRIPTION	TOTAL 1992-93
Other General Funds:	
Athletic	$ 1,038,643
Laundry - Clifton Center	193,471
Total Other Gen. Funds	$ 1,232,114
Grant From State Sources:	
State Deaf	$ 735,000
State Visually Handicapped	211,968
TX Future Problem Solving	125,000
Total State Sources	$ 1,071,968

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GRANTS FROM FEDERAL SOURCES:

DESCRIPTION	TOTAL 1992-93
ECIA Chapter 1 Regular	$ 5,844,127
ECIA Chapter 1 Migrant	228,132
Chapter 1 Handicapped	74,000
EHA-B Formula	1,738,750
Chapter 1 Deaf	43,200
NSF Grant	74,910
ECIA Chapter 2 Formula	475,880
EHA-Preschool	322,500
EHAB-Discretionary	74,673
Total Federal Sources	$ 8,876,172

GRANTS FROM OTHER SOURCES:

DESCRIPTION	TOTAL 1992-93
Comm. Ed.-City of Austin	$ 312,179
Comm. Ed.-Tuition Funds	973,951
Comm. Ed.-Immigration Act	0
Comm. Ed.-ABE	0
Total Grant Sources	$ 1,286,130
OTHER FUNDS:	
Food and Nutrition	$25,490,335
Debt Service	26,391,809
Debt Service - 1987	2,881,375
Debt Service - 1990	4,763,800
Debt Service - 1991	2,783,000
Construction Management	11,312,049
Worker's Compensation	4,196,740
TOTAL EXTERNAL BUDGET	$86,088,752

METHOD

ORE has conducted and reported cost analyses for a number of years, and this report builds on previous work (see "References"). Cost-effectiveness analysis was, however, a new venture, and ORE staff engaged in considerable discussion, over a period of months, about how cost-effectiveness should be calculated and how cost-effectiveness information should be integrated into ORE's annual report to AISD's Board of Trustees about program effectiveness. A first-person account of how staff thinking evolved and what decisions were made is detailed in "Notes on Cost Effectiveness," ORE Publication Letter 92.D. The following is a brief exposition of the method used in performing cost-effectiveness analyses on 1991-92 AISD programs. See "Definitions" and "Notes" for additional information.

Following Levin (1983), cost-effectiveness is defined as cost divided by effect:

Cost/Effect (C/E)

Cost was defined, per earlier ORE research (see Wilkinson, 1985), as a program's *appropriation* (i.e., budget). Cost was taken to include all funding for a program, *regardless of source*. Effect was defined either as (1) *achievement* or (2) *not dropping out*.

Definitions: Cost = appropriation (budget)

Effect = achievement, OR

not dropping out

The **achievement measure of effect** was operationalized as the *residual* (i.e., difference) between the achievement of the program students and some standard or expectation for their achievement. A standard against which to compare is necessary to distinguish between the effect of the special program and the effect of the students' regular instructional program. Residual was defined as the difference between predicted and obtained scores, expressed in grade equivalents (GE's), from either the Norm-referenced Assessment Program for Texas (NAPT) or the Iowa Tests of Basic Skills (ITBS), both norm-referenced, standardized achievement test batteries. Three different residuals were identified: (1) *average ROSE residual*, (2) *national norm gain residual*, and (3) *AISD gain residual*.

Definitions: *Achievement* = Average ROSE residual, OR
National norm gain residual, OR
AISD gain residual

Residual = The difference between predicted and obtained score; for NAPT/ITBS, expressed in grade equivalents (GE's)

Average ROSE residual = The average of the residuals from ROSE, on the reading and mathematics tests or the reading test alone, across grade levels, expressed in grade equivalents (GE's)

National norm gain residual = The difference between observed gain and an expected gain of 1.0 GE per year on the average

AISD gain residual = The difference between observed gain and the average gain in the District, in GE's

ROSE, the Report on School Effectiveness, is a series of regression analyses that answer the question, "How do the achievement gains of a school's students compare with those of other AISD students of the same previous achievement levels and background characteristics?" ROSE predicts achievement scores for the group of students who have both pre- and posttest scores on the ITBS, the Tests of Achievement and Proficiency (TAP), or the NAPT, depending on grade level and year of administration. Predictions are based on:

Previous achievement level
Sex
Ethnicity
Age
Low-income status
Family income
Desegregation status of the school attended
Whether or not the student was a transfer student
Pupil-teacher ratio for school and grade

The predicted scores are then compared with the students' actual scores. The difference between the predicted and actual scores is called the ROSE residual score, which is based on a GE score scale. If students' ROSE residual scores are far enough above or below zero to achieve statistical significance, they are said to have either "exceeded predicted gain" or to be "below predicted gain." Nonsignificant residual scores are classified as "achieved predicted gain." For more information about ROSE, see Paredes (1991).

ORE's GENeric Evaluation SYStem (GENESYS) produces, among other things, a Report on Program Effectiveness (ROPE). ROSE and ROPE are very similar, the major difference between them being that ROSE evaluates schools and ROPE evaluates programs. *Most of the GE's used in calculations of achievement effect calculations were obtained from ROPE analyses produced by GENESYS. GENESYS also produces,* for each program run, counts of *the number of students predicted to drop out and the number who dropped out* (see below). For more information about GENESYS, see Ligon and Baenen (1989) and Wilkinson and Spano (1990).

The **dropout prevention measure of effect** was operationalized as the difference between the number of students in a program predicted to drop out and the actual number of students who dropped out.

Definition: *Not dropping out* = The difference between the number of students predicted to drop out, based on their at-risk category, and the actual number of dropouts

Cost-effectiveness was operationalized as (1) cost per student divided by achievement effect, expressed in GE's or (2) cost of the program divided by dropout prevention effect (predicted minus actual dropouts).

Definitions: *Cost/Effect* = Cost per student/achievement effect, OR

Cost for the program/dropout prevention effect

The **cost-effectiveness ratio**, expressed in dollars, which results from this division is a measure of the cost-effectiveness of a program, i.e., the amount of effect for monies expended, and because a common effect measure was used as the denominator among like programs, programs' cost-effectiveness can be compared.

Definition: Cost/Effect = Cost-effectiveness ratio (in dollars)

Effect ratings were provided for programs (1) for which cost-effectiveness ratios could be calculated and (2) for which cost-effectiveness could not be calculated but about which other evaluation information was available. The ratings were based on the same scale which ORE had twice used previously.

Definitions: *Ratings*: Same scale as in February 1992 program effectiveness charts; same as in ORE's 1991-92 final reports:

Effect is expressed as contributing to any of the 5 AISD strategic objectives:

+	*Positive*, needs to be maintained or expanded
0	*Not significant*, needs to be improved and modified
-	*Negative*, needs major modification or replacement
blank	*Unknown*, may have positive or negative impact on other indicators; however, impact on the five AISD strategic objectives is unknown.

Cost is the expense over the regular District per-student expenditure.

0	*No cost* or minimal cost
$	*Indirect costs* and overhead, but no separate budget
$$	*Some direct costs*, but under $500 per student
$$$	*Major direct costs* for teachers, staff, and/or equipment in the range of $500 per student or & more

To distinguish among the effect ratings determined on the basis of cost-effectiveness and those assigned by ORE staff based on other evaluation information, ratings assigned on the basis of informed opinion are enclosed in a bracket [ ]. See "Program Effectiveness Summary."

Definitions: *Effect Rating* =

+ =	Positive achievement gain, OR Number of students who actually dropped out was less than the number who were predicted to drop out
[+] =	Positive opinion, based on other indicators, such as survey results, lower retention, or other success
0 =	Achievement gain less than 1 month
[0] =	Neutral opinion
- =	Negative opinion, OR Number of students who actually dropped out exceeded the number who were predicted to drop out
blank	Insufficient information

Example #1 shows the cost-effectiveness computations for a program where ROSE residuals were used as the achievement effect measure. Example #2 shows the computations for a program where the AISD gain residuals were used as the effect measure. Example #3 shows the computations for a program using a dropout prevention effect measure.

Example #1 shows the cost-effectiveness computations for a program where ROSE residuals were used as the achievement effect measure.

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Elementary Computer Lab Funding Source: Local Grades: 5 Level of Service: 45-85 hours/week	+	$15,925	264	$60	R: 11.0 M: 8.0 Avg.: 9.5	$6

Example #1: *Elementary Computer Lab, 1991-92 - Grades*: 5 - *Level of Service*: 45-85 minutes/week

Rating: +

Cost: $15,925

Number of Students Served: 264

Cost Per Student: $60 [$15,925/264 = $60.32 = $60 rounded]

Effect: R: 11.0 M: 8.0 Avg. = 9.5

[Because only grade 5 was served, the ROSE residuals in reading and mathematics for just that grade were averaged: 1.1 GE + .8 GE = .95 GE. Effects are transformed to months by multiplying by 10, so the average effect becomes 9.5.]

Cost/Effect: $6 [$60/9.5 = $6.32]

What this means is that it costs $6 per year per Elementary Computer Lab student attending the computer lab to attain one month's achievement gain above that the student would normally have achieved as the result of the regular instructional program.

Example #2 shows the computations for a program where the AISD gain residuals were used as the effect measure.

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	EFFECT (in months)	COST PER STUDENT FOR 1 MONTH GAIN (COST/EFFECT)
Secondary Program Funding Source: Local Grades: 9-11 Level of Service: Full year	+	$815,604	608	$1,341	R: 11.0 M: 7.0 Avg.: 9.0	$149

Example #2 - *Secondary Program, 1991-92 - Grades*: 9-11 - *Level of Service*: Full Year

Rating: +

Cost: $815,604

Number of Students Served: 608

Cost Per Student: $1,341 [$815,604/608 = $1,341.45 = $1,341 rounded]

Effect: R: 11.0 M: 7.0 Avg. = 9.0

	9	10	11	
Reading	3.9	1.3	.6	Program
Math 3.7	.7	-.5		
Reading	1.6	.9	.0	AISD
Math 1.5	.6	-.4		

[(3.9 - 1.6) + (1.3 - .9) + (.6 - 0)] = 2.3 + .4 + .6 = 3.3

3.3/3 = 1.1 average of the reading residuals

[(3.7 - 1.5) + (.7 - .6) + (-.5 - -.4)] = 2.2 + .1 + -.1 = 2.2

2.2/3 = .733 = .7 average of the mathematics residuals

(1.1 + .7)/2 = 1.8/2 = .9 average of the reading and mathematics residuals

.9 x 10 = 9.0

[District gains at each grade level were subtracted from corresponding program gains, for both reading and mathematics. The resulting residuals in reading and mathematics for grades 9-11 were then averaged. The average residuals were then themselves averaged to obtain a single, average effect. Effects are transformed to months by multiplying them by 10.]

Cost/Effect: $149 [$1,341/9.0 = $149]

What this means is that it costs $149 per year per Secondary Program student to attain one month's achievement gain above that the student would normally have achieved as the result of the regular instructional program.

Example #3 shows the computations for a program using a dropout prevention effect measure.

PROGRAM	RATING	ALLOCATION (COST)	NUMBER OF STUDENTS* SERVED	COST PER STUDENT	NUMBER OF DROPOUTS Predicted	NUMBER OF DROPOUTS Obtained	PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT) #	PREDICTED DROPOUTS WHO STAYED IN SCHOOL (EFFECT) %	COST PER STUDENT KEPT IN SCHOOL (COST/ EFFECT)
Dropout Prevention Program Funding Source: External Grades: 9-12	+	$100,000	140	$714	12	3	9	75	$11,111

Example #3 - *Dropout Prevention Program, 1991-92 - Grades*: 9-12 - *Level of Service*: 3 hours/day

Rating: +

Cost: $100,000

Number of Students Served: 140

Cost Per Student: $714 [$100,000/140 = $714.28 = $714 rounded]

Effect: 9

[Predicted 9.1%, Obtained 2.9%

2.9/9.1 = .31868 = 32% of predicted rate, or 68% "saved" from dropping out

.091 x 140 students = 12.74 = 12 rounded = 12 students predicted to drop out

.68 x 12 students = 8.84 = 9 rounded = 9 students "saved"]

Cost/Effect: $11,111 [$100,000/9 = $11,111.11 = $11,111 rounded]

What this means is that it costs $11,111 for each student "saved" from dropping out by the Dropout Prevention Program who would otherwise have been expected to drop out of school.

DEFINITIONS

At risk - In AISD, a student in grades 7-12 is considered at risk of dropping out if the student falls into one of 22 *risk categories*.

Cost - The total cost of the program, regardless of funding source. The cost of a program is above and beyond the cost of the regular educational program. In reporting costs, ORE standardly uses *appropriation* or *budget*, not expenditure. Some programs have capital outlay costs, e.g., for computer equipment in a lab. These costs are shown as "investment cost," i.e., the initial cost of equipment and other items to get the program going. "Operating cost" is the annual cost to keep the program functioning after large initial outlays have been made. Cost figures are rounded to the nearest dollar.

Cost/effect - "Cost per student" or "cost" (for dropout prevention programs) divided by "effect." "Cost/effect" is the *annual* cost for one month's extra achievement gain above that attributable to the regular instructional program.

Cost-effectiveness (C/E) analysis - A type of cost analysis concerned with the evaluation of alternatives according to both their costs and their effects with regard to producing some outcome or set of outcomes. In C/E analysis, a measure of cost is divided by a measure of *effectiveness*. This analysis is distinguished from other cost-effectiveness analyses by the measure used as the denominator. In cost-benefit analysis, by comparison, the denominator is benefit expressed in dollars.

Cost per student - "Cost" divided by "number of students served." Service may have been provided to others besides students, e.g., teachers trained with Title II monies. In these instances, cost per participant should be understood. "Cost per student" is the numerator in the cost/effect calculation.

Dropout - A student is reported as a dropout for a school year if the individual is absent for a period of 30 or more consecutive school days without approved excuse or documented transfer, or fails to reenroll by September 15 of the following school year without completion of a high school program.

See "predicted dropout rate" and "obtained dropout rate."

Dropout risk probability - Based on the *risk factor* associated with the student's membership in one of 22 different *risk categories*.

Effect - There are two measures of "effect." One is an achievement measure based on standardized test scores, and the second is a dropout prevention measure. **All programs ultimately need to be held to the student achievement outcome criterion**, even dropout and drug prevention programs. Like cost, the effect of a program, if any, is above that of the regular instructional program.

The ROSE residual (difference between predicted and obtained score) is the measure of achievement effect, unless the participants make up a disproportionate percentage of the comparison group. If the program participants do make up a disproportionate part of the comparison group, another standard for comparison was selected.

Options other than ROSE residuals include:

- *Actual gain* expressed in grade equivalents,
- *National norm gain residual*, the difference between observed gain and an expected gain of 1.0 GE per year on the average, and
- *AISD gain residual*, the difference between observed gain and the average gain in the District.

For a program like DARE, for example, where all the 5th- and 7th-grade students are in the program, the only comparison available is the national norm.

"Disproportionate" is defined as the program students making up 25% or more of the AISD students at that grade or achievement level.

Achievement effect is expressed as a number greater than one (1). A GE gain of three months, for example, is expressed as 3.0, instead of 0.3.

The ROSE (residual) or dropout measure (predicted minus obtained rate) is used as the effect for those programs for which these measures can be obtained. For other programs, a +/-/0/blank rating is assigned on the same basis as in past years' ORE reports.

In the absence of a ROSE residual for the Composite test, the mathematics and reading residuals are averaged.

The dropout effect is the "number of predicted dropouts who stayed in school," i.e., the number who did not drop out who were predicted to drop out.

Funding source - Local, external, or both. External funding may be grant or other monies from other governmental entities or private organizations.

Grades - The grade levels served by the program. Analyses are based on the grade levels for which measures are available. For example, although a program may serve grades K-6, districtwide achievement test scores are not available for kindergarten.

Level of service - Generally reported in one of three categories--(1) hours per week, (2) hours per day, or (3) full year--but may be more descriptive than quantitative.

Number of students served - May be enrollment in the program or the definition used in the evaluation last year. Not all programs serve students. In these instances, "number served" refers to participants.

Obtained dropout rate - For a program or group, the actual percentage of students who dropped out.

Predicted dropout rate - For a program or group, the sum of the *dropout risk probability* for each student in the group divided by the number of students in the group (N). The number of students predicted to drop out is not equivalent to the number of at-risk students.

Program - Includes any special activity customarily thought of as a program. Some programs, e.g., Chapter 2, have multiple program components. Programs often have separate budgets.

Rating - A rating is supplied both for programs for which cost-effectiveness information can be provided and for programs about which ORE staff have an informed opinion based on evaluation information. In the former case, all programs which have a positive effect--defined as 0.1 GE (1 month's gain in grade equivalents) or better--will have a + rating. (Because the cost-effectiveness ratio grows enormous the closer to zero effect size gets, it is impractical to report sizes smaller than 0.1 GE). In the case of programs for which ORE does not have cost-effectiveness information but does have sufficient evaluation information for an informed opinion, the rating scale used in the program effectiveness summary pages in last year's ORE final reports is applied:

Effect is expressed as contributing to any of the five AISD strategic objectives.

+	*Positive*, needs to be maintained or expanded
0	*Not significant*, needs to be improved and modified
-	*Negative*, needs major modification or replacement
Blank	*Unknown*, may have positive or negative impact on other indicators; however, impact on the five AISD strategic objectives is unknown.

Risk category - One of 22 used to identify and track at-risk secondary (grades 7-12) students. ORE extended the four state-mandated criteria to pinpoint differential dropout rates. Greater percentages of students in some risk categories drop out than in other risk categories. Additional, optional criteria for identifying at-risk students have been specified by the State, e.g., sexual, physical, or psychological abuse, living in a residential treatment facility, and being homeless. However, AISD does not maintain centralized files on students with these characteristics. Therefore, ORE does not use these criteria to identify at-risk students.

Definitions of the secondary risk categories are attached.

Risk factor - For a given *risk category*, the percentage of students in that risk category who dropped out. Expressed as a rate, the risk factor is a two decimal-place numeral. For example, if 45.75% of the students in a particular risk category dropped out, the risk factor for a student in that category would be 45.75. In other words, a student in this risk category would have almost a 50-50 chance of dropping out. Example #1 shows the cost-effectiveness computations for a program where ROSE residuals were used as the achievement effect measure. Example #2 shows the computations for a program where the AISD gain residuals were used as the effect measure. Example #3 shows the computations for a program using a dropout prevention effect measure.

Definitions of Secondary Risk Category Codes

Risk Category	Factors	Definition
1	Age	Student is two or more years older than expected for the grade level
2	Read Ach	Student scored two or more years below grade level in reading on a norm-referenced, standardized achievement test (either the Iowa Tests of Basic Skills or the Tests of Achievement and Proficiency)
3	Math Ach	Student scored two or more years below grade level in mathematics on a norm-referenced, standardized achievement test (either the ITBS or the TAP)
4	2 F's	Student failed at least two courses during a semester
5	TEAMS Read	Student failed the reading section on the most recent administration of the State-mandated, criterion-referenced Texas Educational Assessment of Minimum Skills (TEAMS) (grades 7 & 9 only)
6	TEAMS Math	Student failed the mathematics section of the TEAMS
7	TEAMS Lang	Student failed the language arts section of the Exit-Level TEAMS (grades 11 &12 only)
8	TEAMS Write	Student failed the writing section of the TEAMS (Grades 7 & 9 only)
9	TEAMS W Comp	Student failed only the writing composition portion of the TEAMS Writing test (grades 7 & 9 only)
10	Age, Read Ach or Math Ach	Student is two or more years older than expected for the grade level and scored two or more years below grade level in reading or mathematics on the ITBS or TAP
11	Age, 2 F's	Student is two or more years older than expected for the grade level and failed at least two courses during a semester
12	Age, TEAMS (any)	Student is two or more years older than expected for the grade level and failed at least one of the sections of the TEAMS
13	Math Ach or Read Ach & 2 F's	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP and failed at least two courses during a semester
14	Math Ach or Read Ach & TEAMS (any)	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP and failed at least one of the sections of the TEAMS
15	2 F's, TEAMS (any)	Student failed at least two courses during a semester and failed at least one of the sections of the TEAMS
16	Age, Math Ach or Read Ach, & 2 F's	Student is two or more years older than expected for the grade level, scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, and failed at least two courses during a semester
17	Age, Math Ach or Read Ach, & TEAMS (any)	Student is two or more years older than expected for the grade level, scored two ormoreyearsbelowgradelevel i in mathematics or reading on the ITBS or the TAP, and failed at least one of the sections of the TEAMS
18	Age, 2 F's, & TEAMS (any)	Student is two or more years older than expected for the grade level, failed at least one of the sections of the TEAMS
19	Age, Math Ach or Read Ach, 2 F's, & TEAMS (any)	Student is two or more years older than expected for the grade level, scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, failed at least two courses during a semester, and failed at least one of the sections of the TEAMS
20	Math Ach &	Student scored two or more years below grade level in mathematics and in reading on the ITBS or the TAP
21	TEAMS (two) Read Ach	Student failed at least two sections of the TEAMS
22	Math Ach or Read Ach, 2 F's, & TEAMS (any)	Student scored two or more years below grade level in mathematics or reading on the ITBS or the TAP, failed at least two courses during a semester, and failed at least one of the sections of the TEAMS

Note: "TEAMS" should be interpreted as "TEAMS/TAAS."

NOTES

Page 2

1. See Levin, H. M. (1983). *Cost-effectiveness: A primer.* Beverly Hills, CA: Sage Publications.

Page 9

1. The zero (0) rating for Bilingual/ESL programs derives from the nonsignificant achievement effect (less than an average of 1.0 grade equivalents for reading and mathematics) for *served* students (which does not include students who qualified for services but whose parents denied services). Interpretation of this effect, however, should take into account the relatively few limited-English-proficient (LEP) students for whom there were test scores. At grades pre-K through 6, approximately 16% of the LEP students served had both pre- and posttest scores. At grades 6-8, 32% of the students served had test scores, and at grades 9-12, 40% of the students served had test scores.

Page 10

1. Funding for the Elementary Computer Lab at Blanton came from Chapter 2 ($16,522) and, according to the administrative supervisor of Instructional Technology, the local budget contributed $40,000 for software.

2. Report on Program Effectiveness (ROPE) results were used as an effect measure for the Bridge computer lab at Read and for the Wicat computer lab at Blanton. Calculations were made using the procedures outlined in Notes on Cost Effectiveness #7 (see ORE Publication Letter 92.D).

3. The amount shown for estimated investment cost for the Kealing Magnet Program derives from budget summary data sheets from 1985-86 provided by Finance in March 1993. According to these sheets, the Kealing Magnet Program was allocated $10,000 in 1986-87 for purchased services, capital outlay, and supplies; Kealing Junior High School opened during the second semester of 1986-87. The sheets also indicate that the 1985-86 budget provided planning time for the principal of Kealing for the year before the school opened. Presumably, some salary costs for the principal for that year could also be included in the investment cost for the Kealing Magnet Program.

Page 11

1. The amount shown for estimated investment cost at the Liberal Arts Academy (LAA) was supplied by LAA staff in March 1993; it is the allocation for 1987-88, the year before the LAA opened, which was a planning year. That year, funds were allocated for a magnet planner, a curriculum coordinator, a secretary, teacher stipends, instructional supplies, travel, and capital outlay (see AISD budget book for 1987-88).

Pages 11-12

1. Costs for the Project A+ Elementary Technology Schools break down as follows:

Annual Operating Costs

	Patton	Andrews	Langford	Galindo
Lab techs	$28,527 (3)	$28,527 (3)	$19,018 (2)	$ 9,509 (1)
Other	$34,726	$34,726	$34,726	$34,726
Total	$63,253	$63,253	$53,744	$44,235

( ) = Number of people ($138,905/4 = $34,726.25)

Investment Cost

IBM:	$3,207,300	weighted by size of school
Patton	1,354,320	for three IBM schools
Andrews	1,100,956	
Langford	749,642	

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Apple:	10,000	software
	74,000	equipment
	112,000	AISD contribution
	50,000	cabling
Galindo	$ 246,000	

Galindo's figures reflect one-time only costs using used equipment and could not be duplicated at another school.

Page 12

1. The investment cost for the Science Academy of Austin was determined as follows. Students first began attending the Science Academy in 1985-86; the previous year was developmental. According to AISD's 1985-86 budget book, the 1984-85 budget for the Science Academy was $270,900, which provided salaries, purchased services, supplies, other operating costs, and $40,000 in capital outlay. This amount was added to a $242,811 Department of Education grant in 1985-86 (figure provided by Science Academy staff) for a total of $513,711.

Page 14

1. As an alternative school, the Alternative Learning Center (ALC), the whole school, has long been thought of as a dropout prevention program. Costs for the ALC break down as follows:

Fund 112	Local	$1,054,527
Fund 322	Federal Vocational	1,400
Fund 382	Chapter 2	1,944
		$1,057,871

Both local and external funds were included. Capital improvement costs were not included.

Costs were obtained from a budget status printout (FINB21S) run 1/6/93 for the period ending 8/31/92 supplied by Internal Audit.

Because separate dropout rates are calculated for grades 7-8 and grades 9-12, and because the ALC serves students across those grade levels, costs were prorated across the two grade spans based on the numbers of students; thus, $429,760 represents 40.625% of the cost of the ALC (104 students in grades 7-8 divided by 256 students altogether), and $628,111 is the remaining 59.375% (152/256). By apportioning costs by grade span, the cost per student, $4,132, is the same for grades 7-8 as for grades 9-12.

2. As regards the ALC and predicted dropout rates, two major points must be kept in mind. First, when we predict the dropout rate of a group of students who are selected into the program specifically because they are at risk of dropping out, and when we use the difference between predicted rate and actual rate as a measure of program effect, we are confounding the imprecision of our dropout prediction with program effect. In other words, some of the differences we see may be due to imprecision in dropout prediction rather than differences among programs. This alternative explanation is true of any such analysis, but is magnified in this case. The imprecision is more of a concern here because the prediction is derived from the student population as a whole and then applied to a restricted, nonrandom sample. For this reason, where programs select at-risk students only, the predicted dropout rate is set to 100% since all students in the program should be at risk of dropping out whether our formula predicts it or not. Second, as our dropout prevention programs do a better job of keeping students in school, there may be a weakening of the relationship between the predictors we use and the probability of dropping out. We must continue to examine any dropout prediction formula to see how well it is performing. As our ability to predict decreases, more of the differences we see among programs will be due to random or unmeasured effects rather than program effectiveness. However, this likely future decrease does not negate the present usefulness of comparing actual numbers of dropouts with some predicted number in measuring program effectiveness.

3. No allocations are shown for the Block Programs because these programs involved a reorganization of local campus resources, not additional funding. The costs for these programs could not be obtained.

4. The positive (+) ratings for Block Programs are based on the programs having kept in school students who were predicted to drop out. Because costs could not be obtained, cost-effectiveness could not be calculated; however, effect ratings could still be made.

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Page 15

1. All of the students in the Communities in Schools (CIS) program at Robbins and at the Evening School are at risk by definition. See Note 2 to page 14.

2. The Evening School as a whole is thought of as a dropout prevention program. Costs for the Evening School break down as follows:

Fund 112	Local	$328,846
Fund 322	Federal Vocational	500
		$329,346

Both local and external funds were included. Capital improvement costs were not included.

Costs were obtained from a budget status printout (FINB21S) run 1/6/93 for the period ending 8/31/92 supplied by Internal Audit.

3. The Johnston Technology Learning Center (TLC) is a Chapter 2-funded program. See page 21 for other information about the program.

Page 16

1. See page 25 for more information about the Title VII secondary bilingual program called the Newcomers Program.

Page 17

1. As an alternative school, Robbins Secondary School, the whole school, has long been thought of as a dropout prevention program. Costs for Robbins break down as follows:

Fund 112	Local	$1,130,696
Fund 322	Federal Vocational	76,420
Fund 382	Chapter 2	8,944
Fund 472	Teen Parent	117,178
		$1,333,238

Both local and external funds were included. Capital improvement costs were not included.

Costs were obtained from a budget status printout (FINB21S) run 1/6/93 for the period ending 8/31/92 supplied by Internal Audit.

2. Costs for Zenith were obtained from a budget printout as of 8/31/92. Costs under subobject .7F were totaled across organizations. Transactions for organizations 016 and 268, both codes for Evening School, were totaled: $122,790 + $9,200 = $131,990. No other Zenith costs appeared with this search strategy.

Pages 19-22

1. Except for the prekindergarten program, ratings for all Chapter 2 programs were taken from the Chapter 2 Formula 1991-92 final report.

2. For the prekindergarten program, the rating was based on previous years' test results, since the validity of the Bracken Basic Concepts Scale (BBCS) test results in 1991-92 was questionable.

3. For all Chapter 2 programs, "number of students served" was taken from Chapter 2 Formula 1991-92 final report.

4. The cost of Chapter 2 programs was based on actual allocations taken from December 16, 1991 Chapter 2 Formula Budget Amendment #1.

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5. For computer labs at Blackshear, Blanton, Read, and Johnston, investment costs were obtained from the administrative supervisor for Instructional Technology, and are estimates.

6. Because there were no achievement data for these Chapter 2 programs, ratings were based on the following indicators:

Academic Decathlon	Employee survey
Writing to Read computer lab at Blackshear	Employee survey
Extracurricular Transportation	Employee and student survey
Library Resources	Employee survey
Multicultural/Special Purpose Buses	Employee and bus user survey
Private Schools	Private School survey
Secondary Library Technology Support	Purchases
Spanish Academy	Participant survey
Support for Restructured Robbins	Principal interview
Technology for Access to Problem Solving	Employee survey
Technology Learning Center at Johnston	Employee survey

Page 32

1. A number of grants from federal sources, totaling $856,044, were not included in AISD's 1992-93 budget book. Adding this amount to the total for federal sources shown equals $9,732,216. A breakdown of the grants follows:

Drug-Free Schools	$464,932
Dwight D. Eisenhower (Title II)	166,461
Immigrants	52,151
Javits	32,500
Title VII	140,000
TOTAL	$856,044

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